

REMARKS

Prior to entry of this amendment, claims 1-30 are currently pending in the subject application. By the instant amendment, claims 31-35 are added. Claims 1 and 31 are independent.

Applicants appreciate the Examiner's indication that the Information Disclosure Statements filed on September 25, 2003, and September 26, 2005, have been fully considered.

Claims 1-35 are presented to the Examiner for further or initial prosecution on the merits.

A. Applicant Initiated Interview Request

The instant amendment is filed concurrently with a RCE. Applicants respectfully request, prior to the issuance of an action on the merits, that the Examiner grant a personal interview with applicants' representative in order to discuss in detail the differences between the cited prior art and the subject matter recited in the claims.

Applicants' representative will contact the Examiner via telephone within two weeks of the filing of the instant amendment in order to confirm the acceptability of a personal interview and determine a mutually convenient time and date for conducting the same.

B. Summary of Outstanding Rejections

In the outstanding Office Action Made Final, mailed February 22, 2006, the Examiner rejected claims 1-3, 9-17 and 21-28 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,911,507 to Polla et al. ("the Polla et al. reference") in view of U.S. Patent No. 6,677,709 to Ma et al. ("the Ma et al. reference") and further in view of U.S. Patent No. 6,670,212 to McNie et al. ("the McNie et al. reference"), rejected claim 8 under 35 U.S.C. § 103(a) as being unpatentable over the Polla et al. reference in view of the Ma et al. and McNie et al. references and further in view of U.S. Patent No. 6,245,444 to Marcus et al. ("the Marcus et

al. reference”), rejected claim 29 under 35 U.S.C. § 103(a) as being unpatentable over the Polla et al. and the Ma et al. references and in view of the McNie et al. reference and further in view of U.S. Patent No. 5,834,975 to Bartlett et al. (“the Bartlett et al. reference”), and objected to claims 4-7, 18-20 and 30 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims.

C. Asserted Obviousness Rejection of Claims 1-3, 9-17 and 21-28

In the outstanding Office Action Made Final, the Examiner rejected claims 1-3, 9-17 and 21-28 under 35 U.S.C. § 103(a) as being unpatentable over the Polla et al. reference in view of the Ma et al. reference and further in view of the McNie et al. reference. Applicants respectfully traverse this rejection, and respectfully submit that the Examiner has failed to set forth a *prima facie* case of obviousness for at least the reasons set forth below.

Claim 1 recites a method for manufacturing a flexible MEMS transducer using a flexible substrate. The Examiner maintains that the Polla et al. reference discloses every aspect of claim 1, except for using a flexible substrate, for which the Examiner relies on the Ma et al. reference, and except for using PECVD, for which the Examiner relies on the McNie et al. reference.<sup>1</sup>

In response to applicants’ arguments that the Examiner failed to set forth a *prima facie* case of obviousness with respect to claim 1, the Examiner asserts that the Ma et al. reference discloses “a method of forming a MEMS device that includes the step of forming a flexible substrate such as a polymer.”<sup>2</sup> The Examiner also maintains that it would be obvious to combine the Polla et al. and Ma et al. references to arrive at the claimed invention because the Ma et al.

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<sup>1</sup> See the Office action mailed February 22, 2006, at paragraph no. 3, pages 2-4.

<sup>2</sup> See the Office action mailed February 22, 2006, at paragraph no. 3, page 3.

reference suggests doing so, stating, “Ma, in col 3, also discloses that ‘the ability to fabricate the MEMS controlled OLED pixels on a flexible or rigid substrate affords substantially versatility depending on the particular application or operating environment.’”<sup>3</sup> Moreover, the Examiner asserts that “Ma establishes the equivalency of silicon, polyester as a flexible substrate.”<sup>4</sup> Applicants respectfully disagree with the Examiner’s position.

As an initial matter, applicants respectfully disagree with the Examiner’s assertion that the Ma et al. reference discloses forming a MEMS device on a flexible substrate. In particular, applicants respectfully submit that the Ma et al. reference discloses, at most, *laminating* a separately-prepared MEMS element onto a flexible substrate. See, e.g., the Ma et al. reference at col. 4, lines 51-52, which state, “The MEMS 155 can be *applied* on the spacer 160, for example by *lamination*” (*emphasis added*). Accordingly, applicants respectfully submit that the Ma et al. reference fails to provide the teaching that is lacking from the Polla et al. reference, viz., using a flexible substrate as a basis for building up a MEMS transducer.

Therefore, while the Ma et al. reference may suggest “the ability to fabricate the *MEMS controlled OLED pixels* on a flexible or rigid substrate,” the Ma et al. reference fails to suggest the desirability of modifying the Polla et al. reference by building up a MEMS transducer on the flexible substrate. That is, neither reference, whether alone or in combination, starts with a flexible substrate and builds a MEMS transducer thereon. In particular, the Polla et al. reference starts with a rigid substrate, while the Ma et al. reference separately assembles the MEMS element then attaches it to the flexible substrate. Further, as the Ma et al. reference fails to disclose building up a MEMS device starting with the flexible substrate, it necessarily fails to demonstrate the equivalency of rigid and flexible substrates in this regard.

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<sup>3</sup> See the Advisory Action mailed May 1, 2006, at page 3.

<sup>4</sup> See the Advisory Action mailed May 1, 2006, at page 3.

Applicants also disagree with the Examiner's characterization of the Polla et al. reference regarding the disclosure of other aspects of claim 1. Claim 1 recites, in part,

depositing an upper protective layer to cover the upper electrode layer, the lower electrode layer, and the active layer;

patterning the upper protective layer to be connected to the lower electrode layer and the upper electrode layer, and then depositing a connecting pad layer and patterning the connecting pad layer to form a first connecting pad to be connected to the lower electrode layer and a second connecting pad to be connected to the upper electrode layer; and

patterning the membrane layer to expose the sacrificial layer and removing the sacrificial layer.

In the outstanding Office action, the Examiner asserted that the Polla et al. reference discloses,

depositing an upper protective layer 68 (SiN) to cover the upper electrode layer, the lower electrode layer, and the active layer (col 14, lines 24-35)

patterning the upper protective layer to be connected to the lower electrode layer and the upper electrode layer (fig. 4O)

then depositing a connecting pad layer 66 and patterning the connecting pad layer to form a first connecting pad to be connected to the lower electrode layer and a second connecting pad to be connected to the upper electrode layer (col 14, lines 8-10; fig. 4O)

patterning the membrane layer to expose the sacrificial layer (fig. 4O)

removing the layer 64/sacrificial layer (col 14, lines 37-41)

*(Office action of Feb. 22, 2006, at page 3).*

Applicants respectfully disagree. In particular, applicants respectfully submit that the Polla et al. reference fails to disclose patterning the upper protective layer 68. The Polla et al. reference merely discloses applying a conformal coating of protective layer 68; it does not disclose patterning the protective layer 68.<sup>5</sup> In addition, the Polla et al. reference discloses that

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<sup>5</sup> See the Polla et al. reference at col. 14, lines 29-38.

the connecting pad layer 66 is deposited *before* the deposition of the upper protective layer 68,<sup>6</sup> and thus the Polla et al. reference necessarily fails to disclose “depositing an upper protective layer . . . patterning the upper protective layer . . . *then* depositing a connecting pad layer,” as recited in claim 1. Finally, applicants respectfully submit that FIG. 4O of the Polla et al. reference does not disclose patterning the membrane layer to expose the sacrificial layer, in contrast to the Examiner’s assertion.

In view of the above, applicants respectfully submit that the proposed combination of the Polla et al., Ma et al. and McNie et al. references fails to disclose, or even suggest, each and every element of claim 1, and claim 1 is therefore believed to be allowable over the cited prior art. The remaining rejected claims, viz., claims 2, 3, 9-17 and 21-28, depend from claim 1 and are believed to be allowable for at least the reasons set forth above. Therefore, applicants respectfully request that this rejection be reconsidered and withdrawn.

**D. Asserted Obviousness Rejections of Claims 8 and 29**

In the outstanding Office action, the Examiner rejected claim 8 under 35 U.S.C. § 103(a) as being unpatentable over the Polla et al. reference in view of the Ma et al. and McNie et al. references and further in view of the Marcus et al. reference, and rejected claim 29 under 35 U.S.C. § 103(a) as being unpatentable over the Polla et al. and Ma et al references in view of the McNie et al. reference and further in view of the Bartlett et al. reference. Applicants respectfully traverse these rejections.

Claims 8 and 29 depend from claim 1, and are therefore believed to be allowable for at least the reasons set forth above. Moreover, applicants respectfully submit that the rejections of

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<sup>6</sup> See the Polla et al. reference at col. 14, lines 17-20, which state, “If these integrated circuits have already been formed, then at least one additional aluminum interconnection electrode 66 and possible silicon dioxide passivation layers would need to be deposited *at this point*,” where “at this point” precedes the deposition of the upper protective layer 68.

claims 8 and 29 are not supported by objective teachings as to *why* one of ordinary skill in the art, absent the teachings of applicants' application, would combine the cited prior art references. Accordingly, applicants respectfully submit that the Examiner failed to set forth a *prima facie* case of obviousness with respect to claims 8 and 29. Therefore, applicants respectfully request that these rejections be reconsidered and withdrawn.

E. Allowable Subject Matter

In the outstanding Office action, the Examiner objected to claims 4-7, 18-20 and 30, while indicating that these claims would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. Applicants appreciate the indication of allowable subject matter in claims 4-7, 18-20 and 30. However, applicants respectfully submit that *all* of the pending claims are allowable over the cited prior art.

F. New Claims

Claims 31-35 are added by the instant amendment. No new matter is added, and applicants respectfully submit that support for claims 31-35 can be found in the application as originally filed. Applicants respectfully request entry and examination of claims 31-35.

G. Conclusion

If the Examiner believes that additional discussions or information might advance the prosecution of the instant application, the Examiner is invited to contact the undersigned at the telephone number listed below to expedite resolution of any outstanding issues.

In view of the foregoing amendments and remarks, reconsideration of this application is earnestly solicited, and an early and favorable further action upon all the claims is hereby requested.

Respectfully submitted,

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Date: May 22, 2006

  
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PETITION and  
DEPOSIT ACCOUNT CHARGE AUTHORIZATION

This document and any concurrently filed papers are believed to be timely. Should any extension of the term be required, applicant hereby petitions the Director for such extension and requests that any applicable petition fee be charged to Deposit Account No. 50-1645.

If fee payment is enclosed, this amount is believed to be correct. However, the Director is hereby authorized to charge any deficiency or credit any overpayment to Deposit Account No. 50-1645.

Any additional fee(s) necessary to effect the proper and timely filing of the accompanying-papers may also be charged to Deposit Account No. 50-1645.